United States Department of Agriculture

Research, Education, and Economics
Agricultural Research Service

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Results of the October 20, 2008, samplings of the First-Stubble (fifth sampling) and Plant-Cane (second sampling) Sugarcane Maturity Tests at the USDA-ARS Sugarcane Research Laboratory's Ardoyne Research Farm at Schriever, LA are attached. The studies examine the natural ripening process by comparing the results for the same harvest dates over a 5-yr period (2004 – 2008); consequently, a glyphosate-containing ripener is not applied. Samples consist of 15, hand-cut stalks of clean, trash-free and properly topped cane from each of four replications. **When mechanically harvested, one can expect TRS/TC levels to be 10 to 20% lower as a result of additional trash in the cane.** The study includes seven released Louisiana varieties: LCP 85-384, HoCP 91-555, Ho 95-988, HoCP 96-540, L 97-128, L 99-233, HoCP 00-950, and the newly released L 01-283. The variety, L 99-226 was inadvertently omitted when the study was planted in 2006. The plant-cane study includes L 99-226 as well as the varieties in the first-stubble test, with the exception of HoCP 91-555. The study also contains the variety L03-371 that is a candidate for release in 2010. Harvestable sugarcane stalks in all plots were counted on August 25th. These stalk counts, along with the stalk weights and TRS levels from this harvest date, were used to provide an estimation of cane (t/A) and sugar (lbs./A) yields for the various varieties in this test.

Stalk breakage did occur for a number of the varieties in this test as a result of Hurricane Gustav on September 1st and to a lesser extent Hurricane Ike on September 12th. Efforts were made to include only whole stalks properly topped for this study; as has been done in the past. The Ardoyne Farm has received essentially no rainfall since the October 6th sampling.

First-Stubble. When averaged over the six core varieties (LCP 85-384, HoCP 91-555, Ho 95-988, HoCP 96-540, L 97-128, and L 99-233), sugarcane stalk height increased by 7 inches and stalk weight by 0.1 lbs. Failure to see more of an increase in stalk weight is probably associated with the lack of soil moisture. Height and weight for this sampling date continues to appear to be average based on data collected since 2004. Of the varieties, L 97-128, L 99-233, and L 01-283 have the longest stalks and HoCP 96-540 and L 97-128 the heaviest.

Brix, sucrose, and purities continue to be lower than most of the previous years, and as a result, the average theoretically recoverable sugar (TRS) levels are also lower than in the previous four years; however, TRS levels are essentially similar to those reported for this sampling date in 2007. Differences in TRS levels between varieties seem to be narrowing with the average TRS

Southern Regional Research Center
Sugarcane Research Unit
5883 USDA Road ▪ Houma, LA 70360

level being 243 lbs./TC. Of the varieties, HoCP 96-540 had the lowest TRS (236 lbs.) with HoCP 00-950 the highest (283 lbs.) and L 01-283 the next highest (252 lbs.). Cane and sugar yields for the core varieties averaged 42 t/A and 10,436 lbs./A, respectively. The highest cane yields were found with HoCP 96-540, L 99-233, and L 01-283 with all of the varieties except LCP 85-384 and HoCP 91-555 producing sugar yields in excess of 10,000 lbs./A.

Plant-Cane. Stalk weight and length for the five core varieties (LCP 85-384, Ho 95-988, HoCP 96-540, L 97-128, and L 99-233) are similar to previous years with the plant-cane being only slightly longer and heavier than the first-stubble. Of the varieties included: HoCP 96-540, L 97-128, and L 99-226 have the heaviest stalks and L 99-226 and L99-233 the longest.

Brix, sucrose, and purity and TRS levels for plant cane are higher in 2008 than in 2007, but not as high as those recorded in 2004, 2005, and 2006. Of the varieties included in this test, L 99-226 had the lowest (241 lbs./TC) and HoCP 00-950 the highest (295 lbs./TC) TRS levels. TRS levels for the newly released L 01-283 are lower than HoCP 00-950 but higher than the other varieties included in this test. The experimental variety L 03-371, appears to produce TRS levels that are higher at this sampling than HoCP 96-540 and L 97-128, but lower than HoCP 00-950 and L 01-283.

Average cane and sugar yields for the five core varieties in the plant-cane test were 42.5 t/A and 10,265 lbs./A, respectively. These yields are essentially the same as those obtained in the first-stubble test for the core varieties. The highest cane yields are in L 99-233 (51.7 t/A), HoCP 96-540 (45.9 t/A), and L 99-226 (45.6 t/A). At this sampling date, all of the varieties, except LCP 85-384, are producing more than 10,000 lbs. of sugar/A with three varieties, L 99-233, HoCP 00-950, and the candidate variety L 03-371 producing sugar yields in excess of 12,000 lbs./A. Tonnage is the clear factor in L 99-233's high sugar yields while TRS is the clear factor in HoCP 00-950's superior sugar yields.

The sixth sampling for the first-stubble maturity test is scheduled for November 3rd.

Reminder. If you would like to discontinue your receipt of these reports or if you know of individuals who would like to begin receiving this information in 2008, please contact Mrs. Sandy Roberts by email (Sandra.Roberts@ars.usda.gov) Emailing insures address accuracy. Information regarding USDA research activities can also be found on our website: www.ars.usda.gov/msa/srrc/sru .

Maturity reports are prepared by Dr. Ed Richard and Mr. Mike Duet of the USDA-ARS Sugarcane Research Lab.

Maturity studies on plant-cane grown on mixed land at the Ardoyne Farm, USDA-ARS, SRRC, Sugarcane Research Unit, Houma, LA, October 20, 2008[1].

Variety	Year	Stalk[2]				Normal juice[3]			Sugar yield	Previous sample date[4]	TRS change from previous sample	Estimated yield[6]	
		Wt.	Lh.	Dia.	Density	Bx.	Su.	Pu.	TRS	TRS		Cane	Sugar
		(lb.)	(in.)	(in.)	(g/cm3)	(%)	(%)	(%)	(lb.)	(lb.)	(lb.)	(tons/A)	(lbs/A)
LCP 85-384	2008	1.9	93	---	---	17.07	14.01	82.09	256.5	186.2	70.3	33.3	8535
	2007	2.2	97	0.80	1.26	14.50	11.16	77.01	197.8	134.3	63.5	---	---
	2006	1.9	101	0.74	1.23	16.89	14.18	83.91	262.3	211.4	50.9	---	---
	2005	1.7	81	0.82	0.97	17.07	13.95	81.68	254.7	---	---	---	---
	2004	2.0	91	---	---	16.80	14.23	84.65	264.2	205.8	58.4	---	---
Ho 95-988	2008	2.3	95	---	---	16.53	13.49	81.61	246.3	174.6	71.7	42.6	10493
	2007	2.7	104	0.92	1.20	15.10	11.73	77.65	208.9	148.9	60.0	---	---
	2006	2.6	103	0.91	1.09	17.44	14.62	83.76	270.1	215.8	54.3	---	---
	2005	2.3	87	0.95	0.98	16.91	13.76	81.34	248.4	---	---	---	---
	2004	2.3	96	---	---	15.83	12.80	80.80	232.6	194.3	38.3	---	---
HoCP 96-540	2008	2.5	101	---	---	16.56	13.39	80.84	245.6	169.2	76.4	45.9	11277
	2007	2.6	107	0.88	1.18	13.70	10.09	73.63	176.3	137.5	38.8	---	---
	2006	2.6	113	0.87	1.12	16.49	13.61	82.53	252.2	181.5	70.7	---	---
	2005	2.1	85	0.90	1.06	16.16	13.01	80.47	235.8	---	---	---	---
	2004	2.5	96	---	---	16.31	13.43	82.25	248.4	199.4	49.0	---	---
L 97-128	2008	2.5	107	---	---	17.09	13.92	81.44	256.4	194.3	62.1	39.1	10007
	2007	2.6	115	0.84	1.19	14.76	11.40	77.23	204.5	156.4	48.1	---	---
	2006	2.6	117	0.87	1.06	17.82	14.91	83.66	275.4	229.1	46.3	---	---
	2005	2.2	100	0.88	1.04	17.89	14.57	81.44	268.3	---	---	---	---
	2004	2.4	104	---	---	17.86	15.32	85.76	289.0	254.5	34.5	---	---
L 99-226	2008	2.9	112	---	---	16.29	13.15	80.68	241.0	154.5	86.5	45.6	10986
	2007	---	---	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---	---	---
	2004	---	---	---	---	---	---	---	---	---	---	---	---
L 99-233	2008	2.2	112	---	---	16.56	13.63	82.28	247.7	178.2	69.5	51.7	12814
	2007	2.2	116	0.77	1.21	14.76	11.40	77.23	199.4	135.2	64.2	---	---
	2006	2.2	116	0.81	1.06	17.58	14.83	84.39	272.4	228.8	43.6	---	---
	2005	1.7	97	0.77	1.03	17.49	14.46	82.68	268.2	---	---	---	---
	2004	1.9	106	---	---	17.07	14.20	83.20	261.6	209.4	52.2	---	---
HoCP 00-950	2008	2.1	95	---	---	18.48	15.61	84.45	295.2	236.8	58.4	43.3	12794
	2007	2.3	100	0.86	1.18	16.03	12.84	80.05	236.7	214.6	22.1	---	---
	2006	2.3	98	0.89	1.09	18.73	16.06	85.74	305.8	252.2	53.6	---	---
	2005	---	---	---	---	---	---	---	---	---	---	---	---
	2004	---	---	---	---	---	---	---	---	---	---	---	---
L 01-283	2008	2.1	100	---	---	17.58	14.77	84.03	278.7	206.1	72.6	42.3	11753
	2007	2.4	108	0.81	1.28	15.83	12.95	81.87	241.3	180.5	60.8	---	---
	2006	---	---	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---	---	---
Cont'd	2004	---	---	---	---	---	---	---	---	---	---	---	---

Maturity studies on plant-cane grown on mixed land at the Ardoyne Farm, USDA-ARS, SRRC, Sugarcane Research Unit, Houma, LA, October 20, 2008[1].

Variety	Year	Stalk[2]				Normal juice[3]			Sugar yield	Previous sample date[4]	TRS change from previous	Estimated yield[6]	
		Wt.	Lh.	Dia.	Density	Bx.	Su.	Pu.	TRS	TRS	sample	Cane	Sugar
		(lb.)	(in.)	(in.)	(g/cm3)	(%)	(%)	(%)	(lb.)	(lb.)	(lb.)	(tons/A)	(lbs/A)
L 03-371	2008	2.3	95	---	---	17.07	14.20	83.19	269.3	187.9	81.4	45.4	12235
	2007	---	---	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---	---	---
	2004	---	---	---	---	---	---	---	---	---	---	---	---
Averages[5]	2008	2.2	102	---	---	16.76	13.69	81.65	250.5	180.5	70.0	42.5	10625
	2007	2.4	107	0.84	1.21	14.56	11.06	75.91	194.5	138.1	56.4	---	---
	2006	2.4	108	0.88	1.08	17.38	14.61	84.05	269.9	213.2	56.7	---	---
	2005	2.0	89	0.86	1.05	17.23	14.11	81.81	258.4	---	---	---	---
	2004	2.3	99	---	---	16.74	14.00	83.57	259.0	214.2	44.8	---	---

[1] Data for each parameter represents the average of four replications of 15 stalks each.

[2] Stalk diameter and density based on a subsample consisting of 8 randomly selected stalks from the 15-stalk sample of each rep, will be taken on the 1st, 4th and the 8th maturity study sampling dates.

[3] Brix factor = 0.8854; Sucrose factor = 0.8105.

[4] Previous sample date, September 26, 2007 .

[5] Averages are based only on varieties included in previous year's plant-cane maturity study (LCP 85-384, Ho 95-988, HoCP 96-540, L97-128, and L99-233).

[6] Estimated cane yield is the product of stalk weight and millable stalk counts, estimated sugar yield is the product of TRS and estimated cane yield

Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, SRRC, Sugarcane Research Unit, Houma, LA, October 20, 2008[1].

Variety	Year	Stalk[2]				Normal juice[3]			Sugar yield	Previous sample date[4]	TRS change from previous	Estimated yield[6]	
		Wt.	Lh.	Dia.	Density	Bx.	Su.	Pu.	TRS	TRS	sample	Cane	Sugar
		(lb.)	(in.)	(in.)	(g/cm3)	(%)	(%)	(%)	(lb.)	(lb.)	(lb.)	(tons/A)	(lbs/A)
LCP 85-384	2008	1.7	89			16.56	13.52	81.64	246.9	209.8	37.1	35.3	8691
	2007	1.6	94	0.71	1.30	15.94	13.15	82.49	241.2	218.2	23.0	---	---
	2006	2.1	102	0.83	1.11	17.04	14.26	83.65	263.4	222.2	41.2	---	---
	2005	1.6	84	0.78	1.10	16.87	13.76	81.55	251.0	220.8	30.2	---	---
	2004	1.8	100	---	---	16.56	14.19	85.67	265.0	236.4	28.6	---	---
HoCP 91-555	2008	1.8	95			17.07	13.81	80.93	248.7	215.6	33.1	39.3	9765
	2007	1.9	97	0.78	1.16	17.35	14.38	82.84	261.8	242.2	19.6	---	---
	2006	1.8	97	0.81	1.02	17.44	14.32	82.11	259.7	207.7	52.0	---	---
	2005	1.7	84	0.74	1.20	17.69	14.45	81.69	261.3	240.0	21.3	---	---
	2004	1.7	98	---	---	17.33	14.71	84.85	270.7	242.4	28.3	---	---
Ho 95-988	2008	2.2	92			16.53	13.38	80.90	243.2	215.2	28.0	41.8	10182
	2007	2.3	98	0.86	1.17	16.00	13.00	81.20	236.7	229.6	7.1	---	---
	2006	2.4	99	0.90	1.04	16.93	13.95	82.37	255.9	202.9	53.0	---	---
	2005	2.1	89	0.87	1.06	16.82	13.77	81.83	251.6	214.3	37.3	---	---
	2004	---	---	---	---	---	---	---	---	---	---	---	---
HoCP 96-540	2008	2.4	99			16.14	12.93	80.09	236.2	212.1	24.1	44.0	10371
	2007	2.3	105	0.81	1.25	15.61	12.54	80.33	229.3	213.1	16.2	---	---
	2006	2.3	103	0.86	1.08	16.96	13.95	82.28	258.1	205.6	52.5	---	---
	2005	1.9	87	0.83	1.07	16.67	13.55	81.26	249.2	211.0	38.2	---	---
	2004	2.4	101	---	---	16.18	13.46	83.16	250.3	233.2	17.1	---	---
L 97-128	2008	2.5	104			16.69	13.31	79.73	242.6	215.8	26.8	42.0	10193
	2007	2.2	107	0.80	1.15	17.20	14.37	83.51	265.2	247.1	18.1	---	---
	2006	2.4	111	0.88	0.99	17.66	14.78	83.66	275.7	233.7	42.0	---	---
	2005	2.1	94	0.83	1.09	17.22	13.97	81.09	256.6	236.6	20.0	---	---
	2004	2.3	106	---	---	17.73	15.38	86.76	291.7	270.8	20.9	---	---
L 99-233	2008	2.0	109			16.45	13.32	81.02	240.0	210.9	29.1	46.5	11160
	2007	1.9	107	0.75	1.11	16.03	12.99	81.06	234.1	208.4	25.7	---	---
	2006	2.0	113	0.77	1.05	16.38	13.38	81.61	244.3	205.2	39.1	---	---
	2005	1.8	98	0.74	1.15	17.29	13.99	80.96	254.4	237.6	16.8	---	---
	2004	1.8	110	---	---	16.67	14.08	84.40	261.3	241.2	20.1	---	---
HoCP 00-950	2008	1.7	94			18.04	15.06	83.45	283.3	263.9	19.4	39.2	11094
	2007	2.1	91	0.83	1.17	18.33	15.69	85.60	298.5	279.8	18.7	---	---
	2006	---	---	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---	---	---
	2004	---	---	---	---	---	---	---	---	---	---	---	---
L 01-283	2008	2.2	103			16.87	13.63	80.79	252.5	234.8	17.7	47.5	11949
	2007	---	---	---	---	---	---	---	---	---	---	---	---
	2006	---	---	---	---	---	---	---	---	---	---	---	---
	2005	---	---	---	---	---	---	---	---	---	---	---	---
(Con'td.)	2004	---	---	---	---	---	---	---	---	---	---	---	---

Maturity studies on first-stubble cane grown on mixed land at the Ardoyne Farm, USDA-ARS, SRRC, Sugarcane Research Unit, Houma, LA, October 20, 2008[1].

Variety	Year	Stalk[2]				Normal juice[3]			Sugar yield	Previous sample date[4]	TRS change from previous	Estimated yield[6]	
		Wt.	Lh.	Dia.	Density	Bx.	Su.	Pu.	TRS	TRS	sample	Cane	Sugar
		(lb.)	(in.)	(in.)	(g/cm3)	(%)	(%)	(%)	(lb.)	(lb.)	(lb.)	(tons/A)	(lbs/A)
Averages[5]	2008	2.1	98	#DIV/0!	#DIV/0!	16.57	13.38	80.72	242.9	213.2	29.7	42.0	10426
	2007	2.0	100	0.78	1.19	16.35	13.46	82.32	246.2	228.4	17.8	---	---
	2006	2.1	102	0.84	1.07	17.24	14.35	83.24	264.5	218.6	45.9	---	---
	2005	1.9	88	0.80	1.13	17.05	13.94	81.76	254.9	225.9	29.0	---	---
	2004	2.0	102	---	---	16.77	14.29	85.21	266.6	241.8	24.8	---	---

[1] Data for each parameter represents the average of four replications of 15 stalks each.

[2] Stalk diameter and density based on a subsample consisting of 8 randomly selected stalks from the 15-stalk sample of each rep, will be taken on the 1st, 4th and the 8th maturity study sampling dates.

[3] Brix factor = 0.8854; Sucrose factor = 0.8105.

[4] Previous sample date was October 6, 2008.

[5] Averages are based only on varieties included in previous year's first-stubble maturity study (LCP 85-384, HoCP 91-555, Ho 95-988, HoCP 96-540, L 97-128, and L 99-233).

[6] Estimated cane yield is the product of stalk weight and millable stalk counts, estimated sugar yield is the product of TRS and estimated cane yield